

Sustainable Development: A Primer

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ABSTRACT

Sustainable development (SD) refers to the development that meets the present needs without compromising the ability of future generations to meet their own needs. It means refining the problem caused by continuous economic growth. It is the development that meets the needs of the present without compromising the future. The ultimate objective of sustainable development is to achieve a balance among environmental, economic, and social sustainability, making these the three pillars on which SD relies on. The sustainable development goals (SDGs) recognize strategies that improve health and education, reduce inequality, erase hunger, and spur economic growth. They map out a global vision for a better world. They set out ambitious goals and targets for people, prosperity, planet, and peace. To advance the sustainable development agenda every national government must integrate the SDGs into national plans and deliver the breakthroughs that our world desperately needs. This paper introduces the reader to sustainable development, its importance, and application areas.

KEYWORDS: *sustainability, sustainable development, sustainable development goals*

INTRODUCTION

Our world and the future we want are at risk. The development of humanity over the last decades has led to the increasingly unfavorable climate changes, natural disasters, wars, population explosion, poverty, ignorance and disease, gender inequality, the pollution of our surroundings, the stockpiling of nuclear weapons, and political and socio-economic instability. Responsible behavior that will ensure the long-term exploitation of resources without jeopardizing future generations aligns with the concept of sustainability. The term “sustainability” is often referred to as “sustainable development.” Sustainability is regarded as a paradigm for thinking about balancing environmental, economic, and social needs for the present and future. Sustainable development describes the holistic, systems-based approach that ensures sustainability. The term is often used in business, government, and non-profit organizations to refer to the processes required to balance economic growth, environmental stewardship, and social inclusion.

A lot of development is unsustainable. It has taken us to climate change. Environmental destruction,

conflict, war, poverty, hunger, vast inequalities, and social instability. Unsustainable development occurs when current progress is at the expense of future generations. This includes unsystematic planning that causes environmental degradation, such as the use of fossil fuels, or farming methods that cause damage to animals and ecosystems [1]. Unsustainable development happens when people pursue immediate rewards without thinking about harms to other people or the planet. Decision-makers need to be constantly mindful of the relationships among the three interconnected pillars, namely the environment, economy, and society. They must ensure responsible human behavior and actions at the international, national, community and individual levels.

CONCEPT OF SUSTAINABILITY

The concept of sustainability is based on classical economics. Sustainable development can be interpreted in economic terms as “development that lasts.” Sustainability is a social goal for people to co-exist on Earth over a long time. It is often understood as a form of intergenerational ethics in which the environmental and economic actions taken by present

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generation do not diminish the opportunities of future generation to enjoy similar levels of wealth, utility, or welfare. The notion of sustainability rose to prominence when the modern environmental activists rebuked the unsustainable character of contemporary societies where patterns of resource use, growth, and consumption threatened the integrity of ecosystems and the well-being of future generations.

Sustainability, in one form or another, has been a concern for economists for well over 200 years. The concept of sustainability was originally coined in forestry, where it means never harvesting more than what the forest yields in new growth. The term “sustainability” has become popular in policy-oriented research as an expression of what public policies ought to achieve. The principal inspiration came from the Brundtland Report of 1987. Since then the concept has shifted in meaning [2].

The “Three Pillars of Sustainability” describes what sustainable development is all about. This tool conveys that sustainability consists of environmental, social, and economic factors that are vital when discussing the topic. The pillars (or dimensions) are explained as follows [3,4]:

- *Environmental sustainability* symbolizes the importance of things like natural resources and biodiversity to support life on Earth. This seems to be the most obvious pillar. Environmental sustainability is about the natural environment and how it remains productive and resilient to support human life. It occurs when humanity’s rate of consumption does not exceed nature’s rate of replenishment and when humanity’s rate of generating pollution and emitting greenhouse gases does not exceed nature’s rate of restoration. It relies on governmental initiatives to orient production and consumption into less environmentally destructive channels. For example, the effects of climate change provide a convincing argument for the need for environmental sustainability. Environmentally-friendly infrastructure is needed for increased economic output and productivity.
- *Social sustainability* places importance on social structures, well-being, and harmony; all factors that poverty, wars, and injustices can affect. It encompasses notions of equity, empowerment, accessibility, participation, cultural identity, and institutional stability. This is the ability of a society to uphold universal human rights and meet people’s basic needs, such as healthcare, education, and transportation. Social sustainability is not about ensuring that everyone’s needs are met. Rather, it aims at

providing enabling conditions for everyone to have the capacity to realize their needs.

- *Economic sustainability* implies a system of production that satisfies present consumption levels without compromising future needs. Economics is the study of the allocation of limited resources across unlimited wants. Economies consist of markets where transactions occur. We cannot have it all because there is not enough land, labor or capital (economic resources) to do so. Thus, we must decide what resources are best used to produce what goods [5]. Economic sustainability is the ability of human communities around the world to maintain their independence and have access to the resources required to meet their needs. This is especially important in today’s societies, at a time when many sustainable initiatives require financing and a strong economic rationale.

Numerous practices are cited as threats to sustainability, such as political corruption, social inequality, the arms race, and profligate government expenditures. Like sustainability, the three main dimensions of sustainable development are economic growth, environmental protection, and social equality, as depicted in Figure 1 [6]. These policies are often described as green because they focus on limiting the impact of development on the environment.

WHAT IS SUSTAINABLE DEVELOPMENT?

In contemporary debate, the term “*sustainability*” often serves as a synonym for “*sustainable development*,” which refers to the social-ecological process to achieve sustainability.

The concept of “sustainable development” is about steering humanity toward a sustainable future that does not deplete our natural resources. The desired result is a society where living conditions and resources meet human needs without undermining the planetary integrity and stability of the natural system. The term “sustainable development” gained wide popularity in the international community after the renowned report “Our Common Future” was published by the World Commission on Environment and Development in 1987. The idea of sustainable development grew from numerous environmental movements in earlier decades.

Sustainable development is the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. It may also be regarded as a process of social advancement that accommodates the needs of current and future generations and that successfully integrates economic,

social, and environmental considerations in decision making. It is the mutually beneficial interaction between the legal interest of a business and the economy, government and politics, and civil society, and culture.

The three primary goals of sustainable development are [7]:

- To minimize the expenditure of natural resources while creating new developments.
- To create an environment that can be maintained and sustained without destroying the environment.
- To provide a method for rebuilding existing developments to make them eco-friendly facilities and projects.

International organizations such as NGOs, United Nations, aid organizations, and even governments are making continuous sponsoring efforts to ensure that the goal of sustainable development is achieved for every individual across the globe.

Some real-life examples of sustainable development include the following [8]:

- *Green spaces:* A perfect example of sustainable development manifestation is green spaces. Parks, lakes, and forests are essential to cooling cities. Trees produce oxygen and help filter out air pollution. Governments that design cities to prioritize green spaces often promote commuting by foot or bicycle, encouraging healthy lifestyles and well-being. Sustainable development focuses on eco-friendly building, green architecture, and other sustainable constructions.
- *Solar energy:* Renewable energy is a popular topic and it includes solar energy, hydropower, wind, and biomass fuels. Using the sun's energy to power electric grids can reduce emissions from power plants and other pollutants. You may have spotted solar panels on your rooftop. This technology continues to get cheaper and it is competitive with cost of electricity powered by fossil fuels. Hydro energy as used in turbines. Wind energy is often employed in wind mills.
- *Sustainable finance:* Sustainable finance is another widely impactful sustainable development practice. It covers a range of activities, from funding green energy projects to investing in companies that demonstrate strong social values. Sustainable development simply means that resources should be naturally used in such a way that they are not over-exploited.

Concepts like gender equality, poverty, ecological restoration, and natural resource conservation are all types of sustainable development.

SUSTAINABLE DEVELOPMENT GOALS

In 2015, the 2030 Agenda for Sustainable Development was adopted by the UN. It provides a global framework for national strategies and policies to put the world on a path to sustainability. One of the most important elements of this were the 17 Sustainable Development Goals (SDGs) which set out various goals that the international community must work together to achieve. These global goals aimed at improving the planet and the quality of human life around the world by the year 2030. In essence, the SDGs are a continuation of the eight Millennium Development Goals (MDGs), which began in the year 2000 and ended in 2015. The MDGs helped to lift nearly one billion people out of extreme poverty, combat hunger, and allow more girls to attend school. The 17 SDG goals address the global challenges, including poverty, inequality, climate change, environmental degradation, peace, and justice.

The SDG goals are displayed in Figure 2 [3]. These ambitious goals entered into force on 1 January 2016. The 193 countries that make up the United Nations (UN) agreed to adopt the 2030 Agenda for Sustainable Development. The goals provide key benchmarks for us to understand how sustainability is being achieved worldwide. It is needless to say that the goals are interrelated and they cannot be addressed in isolation. Although not all of the SDGs are met globally, significant progress has been made. People are becoming more aware of them and organizing around them. The SDGs cannot and should not be taken as universal due to conceptual and moral differences among different communities and peoples.

In summary, the 17 goals are [9]:

- Goal 1: No Poverty: End poverty in all its forms everywhere.
- Goal 2: Zero Hunger: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
- Goal 3: Good Health and Well-being: Ensure healthy lives and promote well-being for all at all ages.
- Goal 4: Quality Education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- Goal 5: Gender Equality: Achieve gender equality and empower all women and girls.
- Goal 6: Clean Water and Sanitation: Ensure availability and sustainable management of water and sanitation for all.

- Goal 7: Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all.
- Goal 8: Decent Work and Economic Growth: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- Goal 9: Industry, Innovation, and Infrastructure: Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.
- Goal 10: Reduced Inequality: Reduce inequality within and among countries.
- Goal 11: Sustainable Cities and Communities: Make cities and human settlements inclusive, safe, resilient, and sustainable.
- Goal 12: Responsible Consumption and Production: Ensure sustainable consumption and production patterns.
- Goal 13: Climate Action: Take urgent action to combat climate change and its impacts.
- Goal 14: Life Below Water: Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
- Goal 15: Life on Land: Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
- Goal 16: Peace, Justice, and Strong Institutions: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels.
- Goal 17: Partnerships to Achieve the Goal: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Key issues addressed by the 17 SDGs are summarized in Figure 3 [10]. Unlike the MDGs, which relied exclusively on funding from governments and nonprofit organizations, the SDGs also rely on the private business sector to make contributions. The SDGs serve as a blueprint for peace and prosperity for people and the planet, now, and into the future. Every year, the UN Secretary General presents an annual SDG Progress report. Earth Council Alliance (ECA), network of nongovernmental organizations (NGOs) and individuals dedicated to promoting

sustainable development, supports the sustainability goals.

The SDGs are a call-to-action for people worldwide to address five critical areas of importance by 2030: people, planet, prosperity, peace, and partnership. This is displayed in Figure 4 [11] and explained as follows [12]:

1. *People* - to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfill their potential in dignity and equality and in a healthy environment
2. *Peace* - to foster peaceful, just and inclusive societies, which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development
3. *Partnership* - to mobilize the means required to implement this Agenda through a revitalized Global Partnership for Sustainable Development, based on spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people
4. *Prosperity* - to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occur in harmony with nature
5. *Planet* - to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations

APPLICATIONS OF SUSTAINABLE DEVELOPMENT

Sustainable development has become the catchphrase for international aid agencies, the jargon of development planners, and the slogan of development and environmental activists. It has attracted much attention in the academic, governance, planning, and development intervention space. Although the three pillars of sustainable development can apply to any business or industry, we will only consider its implications in the following areas.

- *Human Development:* Proper human resource management and development is an important implication of social development. It is the people who have to ensure that the principles are adopted and adhered to. It is people who have the responsibility to utilize and conserve the environment. Sustainable development relates to the principle of meeting human development

goals while at the same time sustaining the ability of natural systems to provide the natural resources and ecosystem services on which the economy and society depend. It implies human thinking and actions in the quest for sustainable human development. In order to achieve SD, there is the need for population control. There is also the need for all nations to formulate and implement social policies that foster tolerance, social cohesion, and justice. This can be done by enshrining universal human rights within a framework of citizenship, inclusion, equity, and effective political governance. UN should acknowledge and consider different national capacities and levels of development and respect national policies and priorities [13].

- **Sustainable City:** This is an urban center that improves its environmental impact through urban planning and management. You can imagine a city with parks and green spaces, solar-powered buildings, rooftop gardens, and more pedestrians and bicycles than cars. Smart cities are actively moving towards greener urban ecosystems and better environmental management [14].
- **Sustainable Urban Development:** This is characterized as achieving a balance between the development of and equity in the urban areas and the protection of the urban environment. Today, more than half of the world's population – 4.4 billion inhabitants – live in cities. Urban settlements, as a densely populated built environment, are the center of attention. The speed and scale of urbanization brings challenges. Cities play an increasingly important role in tackling climate change. Rapid population growth, economic development and a demand for more natural resources have put a strain on our planet. We must work hard to change the way we develop, maintain and dispose of our buildings. Figure 5 shows various elements of sustainable urban development [15].
- **Sustainable Construction:** This aims at applying the principles of sustainable development to the construction industry. It involves developing buildings such as houses, offices and other commercial properties that incorporate and use renewable and recyclable resources, with the primary goal of lessening the impact on the environment. It also entails supporting natural environments and habitats. Sustainable development affects different areas of construction, such as energy, technology, manufacturing and transport. As one of the biggest consumers of natural resources (such as

water), the construction industry has a big part to play in sustainable development. Sustainable construction is crucial if we want to make developments work for ourselves, future generations, and the environment. We need to ensure the construction industry meets the needs of the current population while preserving the needs of future generations. The industry needs to shake off the reputation of being slow to adapt. Construction professionals should consider the impact transport has on the environment and make considered choices. A construction site is shown in Figure 6 [16].

- **Sustainable Forestry:** We cannot survive on this planet without forests. Forests provide fuel for cooking and warmth, medicinal plants, food, wildlife habitat, clean water, spiritual and cultural touchstones, and for many, the means to earn a living. Tearing forest down for materials like timber is not good for the environment. Look for companies that replace trees they plant or look for recycled materials if you want to go one better.
- **Corporate Social Responsibility:** This is a self-regulating business model that helps a company to be socially accountable to itself, its stakeholders, and the public. By practicing corporate social responsibility (CSR), companies can be conscious of the kind of impact they are having on all aspects of society, including economic, social, and environmental. Businesses must consider the interests of communities and the environment that they operate in. Businesses should not base their decisions solely on profit; other factors such as social and environmental should be considered.

BENEFITS

The concept of sustainable development has emerged as a beacon of hope for our planet's future. Sustainable development charts a path towards a world where humans and nature coexist harmoniously. The sustainable development goals are a universal call to action to end poverty and social inequality while tackling climate change. Where development is sustainable, everyone has access to decent work, quality health care, and education. Natural resource use avoids pollution and permanent losses to the environment. Public policy choices ensure that no one is left behind due to disadvantages or discrimination. As the threats of climate change become increasingly important, win-win strategies for mitigation, health improvement and cost savings offer a range of advantages for various stakeholders. Other benefits of sustainable development include [7]

- Elimination of poverty across the world

- Ensure good health and well being
- Provision for clear water and sanitation
- Provision of quality education for all
- Achieving Gender Equality
- Allowing access to economical and clean energy
- Building up strong infrastructure, Supporting Inclusive and Sustainable Industrialization and encouraging innovation

CHALLENGES

Sustainable development at any scale can be challenging because of society's competing economic, social, and environmental needs. Some experts have criticized certain features of the concept, including [17]:

- It is a multidimensional concept and its interpretation and understanding is often content and context specific
- Its generality or vagueness, which has led to a great deal of debate over which forms or aspects of development qualify as "sustainable"
- Its lack of quantifiable or objectively measurable goals
- Its assumption of the inevitability and desirability of industrialization and economic development
- Its failure to ultimately prioritize human needs or environmental commitments, either of which may reasonably be considered more important in certain circumstances

The concept has been criticized in various ways. Critics question what is to be sustained in sustainable development. Part of the problem is that "development" itself is not consistently defined. While some see it as an oxymoron and regard development as inherently unsustainable, others are disappointed in the lack of progress that has been achieved so far [14]. SDGs are not being accomplished at the appropriate speed needed to meet the 2030 deadline. Another area of the SDGs that lacks progress is gender equality. Countries were scored against SDGs targets that particularly affect women, such as access to safe water or the Internet. On a scale of zero to 100, where a score of 100 means equality has been achieved, Denmark was the top performing country out of 129 countries with score slightly under 90.

CONCLUSION

The world is faced with challenges in all three dimensions of sustainable development—economic, social, and environmental. More than 1 billion people are still living in extreme poverty, and income

inequality within and among many countries has been rising. Unsustainable consumption and production patterns have resulted in huge economic and social costs and may endanger life on the planet. Sustainable development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It aims at making use of natural resources and the environment for improving the standard of people in such a way that the ability of future generations to meet their own needs is not compromised. It attempts to find a balance between economic development, environmental protection, and social well-being. More needs to be done by the key players—particularly the United Nations, governments, private sector, and civil society organizations to ensure that everyone is sustainable development aware, conscious, cultured, and compliant.

Sustainable development is how we must live today if we want a better tomorrow. The goals of the sustainable development project cannot and will not be met without the help of everyone. As illustrated in Figure 7, a better future is possible if we all act now [18]. There are many actions, big and small, that the average person can take to contribute to sustainable development. Boosting your knowledge and taking a class may help you learn about climate change. Eliminating waste can make a difference. Taking the bus or train is typically cheaper and better for the environment than driving a car. Save on electricity at home by unplugging appliances when not in use. Opt for online paperless statements instead of having bills mailed to you. Consider a career in sustainable development. Sustainable development encompasses many broad fields, such as management, public policy, law, urban planning, education, etc. So there are plenty of jobs you can choose from. For more information on sustainable development, one should consult books in [19-42] and the following related journals:

- *Sustainability*.
- *Sustainable Development*

REFERENCES

- [1] "What is sustainable development and why is it necessary?" August 2023, <https://utopia.org/guide/what-is-sustainable-development-and-why-is-it-necessary/>
- [2] T. Kuhlman and J. Farrington, "What is sustainability?" *Sustainability*, vol. 2, 2010, pp. 3436-3448.
- [3] A. Browne, "Explainer: What is sustainability and why is it important?" October 2022, <https://earth.org/what-is-sustainability/>

- [4] "What is sustainability?" <https://www.mcgill.ca/sustainability/files/sustainability/what-is-sustainability.pdf>
- [5] S. R. Elliot, "Sustainability: an economic perspective," *Resources, Conservation and Recycling*, vol. 44, no. 3, June 2005, pp. 263-277.
- [6] "What is sustainable development?" <https://envirotaqa.com/sustainable-development/>
- [7] "Sustainable development," December 2023, Unknown Source.
- [8] "Sustainable development: Goals, importance, and career guide," November 2023, <https://www.coursera.org/articles/sustainable-development>
- [9] "Sustainable Development Goals," <https://education.nationalgeographic.org/resource/sustainable-development-goals/>
- [10] <https://www.pinterest.nz/pin/798192733934359652/>
- [11] "Understand sustainable development," <https://trailhead.salesforce.com/content/learn/modules/the-global-goals/learn-about-the-global-goals>
- [12] O. Olayide, "Introduction to the Sustainable Development Goals," October 2016, https://www.researchgate.net/publication/312835158_Introduction_to_the_Sustainable_Development_Goals
- [13] J. Mensah, "Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review," *Cogent Social Sciences*, vol, 5, no.1, 2019.
- [14] "Sustainable development," *Wikipedia*, the free encyclopedia https://en.wikipedia.org/wiki/Sustainable_development
- [15] https://www.researchgate.net/figure/Sustainable-urban-development-a-synthesis-framework-with-three-dimensions-and-ten-themes_fig4_303379673
- [16] "Sustainable and construction: What you need to know," <https://www.letsbuild.com/blog/sustainable-construction-what-you-need-to-know>
- [17] "Department of Economic and Social Affairs Sustainable Development," Unknown Source.
- [18] "Fast facts – What is sustainable development?" <https://www.un.org/sustainabledevelopment/blog/2023/08/what-is-sustainable-development/>
- [19] M. F. Ashby, Michael F. *Materials and Sustainable Development*. Butterworth-Heinemann, 2022.
- [20] G. Atkinson et al. (eds.), *Handbook of Sustainable Development*. Edward Elgar Publishing, 2014.
- [21] S. Bass, B. Dalal-Clayton, and J. Pretty. *Participation in Strategies for Sustainable Development*. London: IIED, 1995.
- [22] S. Beder, *The Nature of Sustainable Development*. Newham: Scribe Publications, 1996.
- [23] J. Blewitt, *Understanding Sustainable Development*. Routledge, 2012.
- [24] M. Carley and I. Christie. *Managing Sustainable Development*. Routledge, 2017.
- [25] H. E. Daly, *Beyond Growth: The Economics of Sustainable Development*. Beacon Press, 2014.
- [26] J. Elliott, *An Introduction to Sustainable Development*. Routledge, 2012.
- [27] A. Espinosa and J. Walker. *Complexity Approach to Sustainability, A: Theory and Application*. World Scientific, 2017.
- [28] G. C. Gallopín, *A Systems Approach to Sustainability and Sustainable Development*. ECLAC, 2003.
- [29] I. Goldin and L. A. Winters (eds.), *The Economics of Sustainable Development*. Cambridge University Press, 1995.
- [30] N. E. Harrison, *Constructing Sustainable Development*. Suny Press, 2000.
- [31] M. Mawhinney, *Sustainable Development: Understanding the Green Debates*. John Wiley & Sons, 2008.
- [32] N. Middleton and P. O'Keefe, *Redefining Sustainable Development*. London: Pluto Press, 2001.
- [33] I. Moffatt, N. Hanley, and M. D. Wilson, *Measuring and Modelling: Sustainable Development*. Parthenon Publishing Group Inc., 2001.
- [34] I. Moffatt, *Sustainable Development: Principles, Analysis and Policies*. Parthenon Publishing Group, 1996.

- [35] M. Redclift, *Sustainable Development: Exploring the Contradictions*. Routledge, 2002.
- [36] D. Reid, *Sustainable Development: An Introductory Guide*. Routledge, 2013.
- [37] P. P. Rogers, K. F. Jalal, and J. A. Boyd, *An Introduction to Sustainable Development*. Earthscan, 2012.
- [38] N. Roorda, *Fundamentals of Sustainable Development*. Routledge, 2020.
- [39] J. D. Sachs, *The Age of Sustainable Development*. Columbia University Press, 2015.
- [40] J. D. Sachs et al., *Sustainable Development Report 2022*. Cambridge University Press, 2022.
- [41] J. Sayer and B. Campbell, *The Science of Sustainable Development*. Cambridge University Press, Cambridge, UK, 2004.
- [42] T. P. Soubbotina, *Beyond Economic Growth: An Introduction to Sustainable Development*. World Bank Publications, 2004.

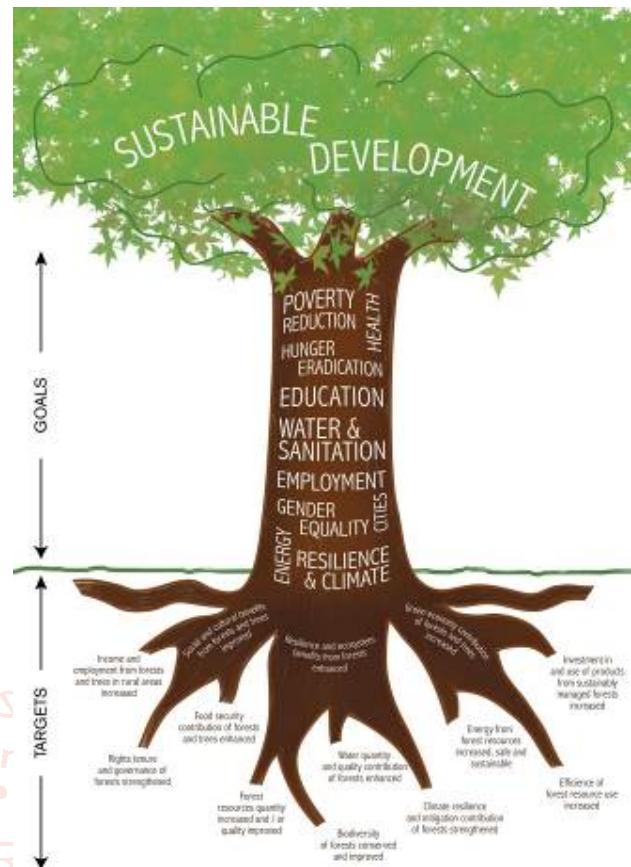


Figure 3 Key issues addressed by the 17 SDGs [10].

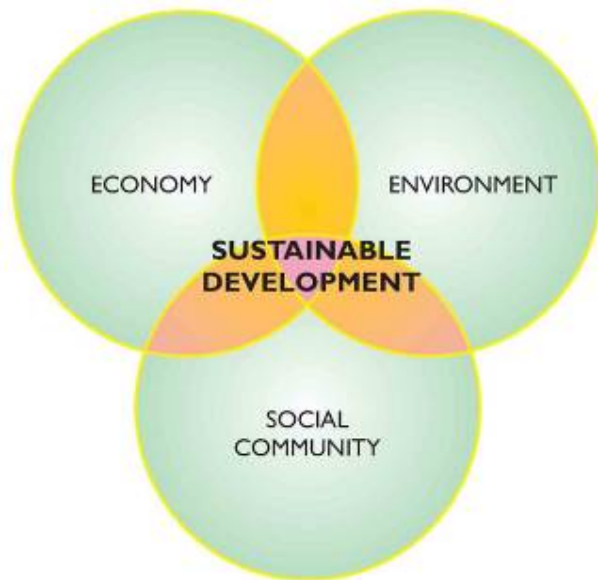


Figure 1 The three main dimensions of sustainable development [6].



Figure 2 The Sustainable Development Goals [3]



Figure 4 The five dimensions of the 2030 Agenda [11].



Figure 5 Various elements of sustainable urban development [15].



Figure 7 A better future is possible if we act now [18].



Figure 6 Construction sustainability and technology [16].